MONTHLY DOSE PROJECTION FOR LANSCE

Purpose

This Air Quality Group procedure describes the method for **projecting** the monthly dose used in tracking the 12-month dose from LANSCE releases during operation if the *measured* 12-month dose to date from LANSCE has exceeded 5.0 mrem. This projection is used to determine if LANSCE is likely to exceed 7.0, 8.0, or 8.5 mrem during the upcoming operating month. This procedure provides a mechanism for determining the milestone conditions in "Radioactive Air Emissions Management Plan for LANSCE" (ESH-17-610) and contributes to assuring that LANL complies with the NESHAP 10-mrem dose standard.

Scope

This procedure applies only to radioactive gaseous emissions from LANSCE operations and is performed both by LANSCE and ESH-17. This procedure is used only when the *measured* 12-month dose to date from LANSCE exceeds 5.0 mrem.

In this procedure

This procedure addresses the following major topics:

Signatures

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General information about this procedure

Attachments

This procedure has no attachments.

History of revision

This table lists the revision history and effective dates of this procedure.

Revision	Date	Description Of Changes
0	8/4/95	New document.
1	2/5/97	Changed LAMPF to LANSCE and distribution list; added definition of "LANSCE operation." Changed point of contact at LANSCE to the Facility Manager. Added 7-mrem projection.

Who requires training to this procedure?

The following personnel require training before implementing this procedure:

- ESH-17 group members assigned to calculate projected doses
- LANSCE personnel who provide the information used to project doses

Training method

The training method for this procedure is "self-study" (reading) and is documented according to ESH-17-024 or the LANSCE training procedure.

General information about this procedure, continued

Definitions specific to this procedure

LANSCE Operation: Whenever accelerator beam of any magnitude is being delivered to the beam switchyard. This definition is appropriate because measurable gaseous emissions can not be produced until this condition is met.

Month: Contiguous time periods corresponding roughly to the calendar months but which may be as short as 2 weeks or as long as 6 weeks. Each month will begin on a Monday and end on a Sunday. ESH-17 and LANSCE will formally agree on the weeks assigned to each operating month prior to the beginning of the LANSCE operating cycle to which the months apply. These assignments may be modified at any time provided all weeks are accounted for.

References

The following documents are referenced in this procedure:

- ESH-17-024, "Personnel Training"
- ESH-17-501, "Dose Assessment Using CAP-88"
- ESH-17-608, "Monthly Curie Limit Projection for LANSCE"
- ESH-17-610, "LANL Radioactive Air Emissions Management Plan for LANSCE"

Note

Actions specified within this procedure, unless preceded with "should" or "may," are to be considered mandatory (i.e., "shall").

Projecting doses

Preliminary condition

During LANSCE operation, LANSCE provides verified actual emissions information to ESH-17, typically a week or two after the end of the operating month. ESH-17 calculates the *actual* dose and sends the results to LANSCE, according to ESH-17-610 requirements. Whenever the *actual* LANSCE 12-month dose exceeds 5.0 mrem for the most recent past month and LANSCE operation is also scheduled for the balance of the current and following month, this procedure goes into effect.

Provide projected operating information to ESH-17

LANSCE personnel prepare and provide ESH-17 with projected operating information for the current and following month no later than 5 business days after receiving the report (referenced above) from ESH-17 notifying them that the 5-mrem *actual*-dose milestone has been exceeded. This operating information includes the expected fractional radionuclide compositions and the projected curie releases for the current and next months based on scheduled beam current, operating hours, and any other known modifying factors such as ventilation flow rates and delay line effects.

Steps to project doses

To project doses, **ESH-17** performs the following steps:

Step	Action
1	Select a conservative but realistic meteorology file for the month of interest. (These files are available from the meteorological staff of ESH-17.)
2	Using CAP88 per ESH-17-501, the nuclide fractional composition, the projected total curie release, the selected meteorology, and standard LANL values for other CAP88 factors, calculate a projected dose for the current and upcoming month at the LANL MEI (East Gate).
3	Subtract the oldest monthly value from the 12-month dose to date to determine the rolling 11-month LANSCE dose to the beginning of the projection month. Assure that the most recent (usually last year's) LANSCE diffuse emissions dose is included. Add the projected dose to this 11-month dose. Do this step for both the current and next month.
4	If the projected 12-month dose through the current or next month exceeds 7.0 mrem, see ESH-17-608 and continue this procedure.

Projecting dose, continued

Step	Action
5	If the projected 12-month dose through the current or next month exceeds 8.0 mrem, notify the TA-53 Facility Manager and arrange an internal LANL management meeting with representatives (as available) from ESH-17, LANSCE, and ESH-DO. The purpose of the meeting is to discuss the appropriate action if the 8.5-mrem condition is reached.
6	If the projected 12-month dose through the current or next month exceeds 8.5 mrem, notify the TA-53 Facility Manager and arrange a meeting between DOE management and LANL senior management consisting of representatives (as available) from DOE/LAAO, ESH-17, LANSCE, ESH-DO. Although not required, LANL-DIR should be invited to participate. The purpose of the meeting is to determine if continued operations are appropriate.

Information distribution

Provide a copy of the dose projection report to the TA-53 Facility Manager. If the projected 12-month dose for the current or next month exceeds 7 mrem, send a copy of the report to DOE/LAAO. Distribute meeting notes to attendees. Send a copy of all such meeting minutes to DOE.

Records resulting from this procedure

Records

The following records generated as a result of this procedure are to be submitted **within two weeks of generation** to the ESH-17 records coordinator:

- CAP-88 assumptions, input data, and results related to this procedure
- meeting minutes

The following LANSCE records generated as a result of this procedure are to be submitted **within two weeks of generation** to the LANSCE records coordinator:

- how the radionuclide composition was determined
- estimated curie release and related operating assumptions